

Part I

APPENDIX D. SUPPLEMENTAL TESTING FOR EXTENDED EXPOSURE LIMITS FOR FLUX-CORED ARC WELDING FILLER METALS

Scope

This appendix supplements Part I, Section 3.3.3 and specifies provisions for test procedures for use in qualifying the extended exposure time for flux-cored arc welding filler metals.

Test Specimens

The electrode shall be exposed to an environment of 80°F (+ 5°F, - 0°F) and 80% (+5%, - 0%) relative humidity for the period of time desired to be approved for accumulated exposure. No conditioning of the electrode after exposure and prior to testing is permitted. The environmental chamber shall meet the requirements of AWS A5.5-96, Section 15.4, except for Section 15.4(3). Exposure time shall begin when the environmental chamber has reached the required temperature and humidity. Time, temperature, and humidity shall be continuously recorded for the period that the electrodes are in the chamber.

All testing for diffusible hydrogen levels shall be performed in accordance with AWS A5.20-95, Section 15, – Diffusible Hydrogen test, modified as follows:

1. The diameter of the electrode that will be used shall be tested.
2. Welds shall be made at a wire feed rate (or welding current) that is at least 75% of the manufacturer's maximum recommended wire feed rate (or welding current) for the electrode type and size being tested. The contact tip-to-work distance (TTW) shall be at the minimum recommended by the manufacturer.

Specification Limits

Based upon test results, the manufacturer of the electrode, or a consultant approved by the Engineer for such purposes, shall provide recommendations for storage and atmospheric exposure to ensure that the diffusible hydrogen level will not exceed the limits prescribed in Part I, Section 2.4.1.2. Such recommendations may take the form of fixed exposure periods, varying exposure limits using temperature-humidity charts similar to those provided in AWS D1.1-98, Annex VIII, and may include provisions for heated storage and baking of electrode wire. Rebaking of wire shall be included only when documented by testing the wire after baking to verify that the baking procedure returns the electrode to the diffusible hydrogen level prescribed in Part I, Section 2.4.1.2.